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COMMUNICATIONS.

AMERICAN CONTRIBUTIONS TO MILITARY HYGIENE AND SURGERY.

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The present uncertainty of continental governments, and the great activity in military circles, perfecting the machinery of war, are significant of bloody struggles not far in the future. A physician now traveling in Europe writes me that the medical departments of nearly all the continental armies, particularly Prussia and France, are being reorganized. Field hospitals of tents, and stretchers with Dr. John Swinburns' attachment (for extension and counter-extension), are being introduced. In the French army an ambulance wagon of the American pattern has been adopted, and other minutia, including special instructions and regulations for the field of battle, which were practically the teachings of the American ambulance, during the siege of 1870 and 1871. This ambulance (or hospital) was a reproduction of the methods and appliances used in the hospitals during our civil war.

The resources of field sanitary service and military hygiene had remained unchanged in most European armies from a period remote. Operative surgery had been studied with care. Learned surgeons had followed the great armies, and wrote well on the surgical necessities of the field, but its military hygiene was comparatively unnoticed. The mortality in the hospital and rear of the battle-field, from wounds and neglect, was fearful, and thought to be unavoidable, until America taught that it came from want of hygienic care.

A comparison of some of the methods seen in the French and Prussian armies during the French and Prussian war, will show how far back they were, and how essential to have some change.

The French medical service is performed by two classes of surgeons; one in the field, moving with the troops, the other back, with the hospitals. They are subordinate to the military, and are under stringent regulations respecting the care of the sick and wounded. The diet and medicines are designated, and nothing can be prescribed beyond this, unless at the expense and responsibility of the surgeon. As operators the same limitation is imposed, confining them to certain plans and methods. Surgeons with the moving army may aspire to promotion for bravery as fighting men, receive commissions, and do double service. Surgeons in the rear may become, by long practice, medical directors, whose principal business is to look after the expenses and business interests of the hospitals. An operating surgeon has very little judgment of his own to exercise, it being determined by the advising staff what shall be done, and the dressers and attendants finishing the work. The hygienic care is left to the nurses, and to general circumstances, and also the particular diet and time of giving it. Most of the surgeons in the field are young men from civil life or hospitals, with but little general knowledge of either military surgery or hygiene. Occupying an inferior position to the military, and hemmed in by minute regula-

tions, their sphere of usefulness is narrowed. In the Prussian army the same class of men are seen, who can only aspire to a commission in the ranks, or be promoted as directors; during this war nearly seventy surgeons were killed on the battle-field, indicating the ambition for military promotion.

The working of the medical staff on the field or in the hospital, in the Prussian service, was more formal and cumbersome than in the French army; the latter were more ready to act in emergencies, and cared less for regulations; the former worked with a deliberate consciousness of fulfilling the exact letter of instructions. To illustrate: near Metz, after one of the sorties by the Prussians, during which they were forced to retire leaving their wounded, nearly thirty-six hours elapsed before formal orders were given to bring them in; during this time a force of surgeons and stretcher-bearers remained in full sight, and less than a quarter of a mile away, listening to the cries and groans of the wounded, waiting for orders.

The first attention paid to the wounded was very formal in the Prussian service. The surgeon directed his assistant to tie up the wound with a bandage carried by the soldier, or perform such other service as the immediate occasion required, sometimes assisting himself, but generally directing. Then came the stretcher bearer, and removed the wounded that could not walk to some central point, where other surgeons diagnosed the case with more care. The first surgeon on the field (at his option) labeled the wounded with pasteboard cards, giving diagnosis of wound and all facts essential or likely to be lost in the hurry and confusion. This was done, in the latter part of the war, in all cases where the brain would possibly be affected. The second dressing in the rear made record in this way of all the severe cases; here the real field surgery was performed, including all dressings that were essential, and then another removal followed, to the hospital, generally some church or public building, where final dressings and nourishment were given.

The French carried the wounded from the battle field direct to the hospital, administering wines or cordials, if possible, at first, limiting their attentions to dangerous wounds and temporary dressings. Field surgery was limited, and most of the work was performed at the stationary hospital, where the more dangerous cases remained for some time.

Among the wounded French a species of patriotic frenzy prevailed, manifested in the songs, shouts and exultations; each man seemed buoyed up with a martyr-like courage, and the surgeons moved round with an air of triumph. With the Prussian wounded this was reversed; intense depression, marked by groans, sobs and curses, followed.

The Prussian surgeons worked with a mechanical indifference still more depressing. The effect of this was noticed in the amount of care and attention necessary; also, in the reaction from the shock of the injury, and the rapid fatality or recovery which followed.

The wounded French seemed to vie with each other to keep up, and depend as little as possible on surgeons and attendants. In many instances, enthusiastic wounded, pressing forward to continue the battle, had to be forced back. Among the wounded Prussians, as soon as they were beyond the battle field, helplessness and inability of the most abject kind prevailed. Attendants and stretcher bearers were overburdened, and quite frequently men awaiting transportation had to be driven back at the point of the bayonet, on foot, they seemed so helpless. The mortality from the same class of wounds was greater (particularly among the Bavarians) than in the French service, and the field hospitals were always filled to overflowing with men suffering from both physical and nervous shock.

In the transportation of the wounded back from the front, the rudest and most irregular methods were adopted. The French had no regular organization, except a few wagons of irregular models. They expected to secure ambulances, such as they could get from the towns about the battle fields, and trust to the railroads. Had the war not been transferred to the walls of Paris, where carriages were readily procured for all occasions, great suffering would have followed this want.

In the Prussian service the ambulances were like our lumbering omnibuses; the wounded were forced to sit up, in a constrained posture; the stretchers were, many of them, mounted on wheels, similar to our wheelbarrows. No particular system or plan of ambulances was used, and vehicles of all descriptions were pressed into service. The railroads were largely used, but the cars were either so close as to be uncomfortable, or very cold, and worse than the average American cattle car.

The Bavarian troops, in their sanitary

management, were notoriously deficient, and wanting in common sense sanitary rules. Officers and surgeons who had seen service for a quarter of a century had no practical ideas of temporary field hospitals. All the theories and discussions by learned authorities had contributed no light on this subject, and the same methods were practiced that had prevailed for years. Wounded men on the field were hurried back to large close buildings, such as churches, cathedrals, nunneries, railroad stations, etc., and the over-crowding was always a source of mortality. No effort was made to treat the wounded on the field, except in cases of necessity.

In the French service, when the war came near Paris, the citizens vied with each other for the care of the wounded at their homes, and by this means prevented many of the evils from concentration. Later, hospitals were improvised, of various materials and shapes, according to the taste of the manager, but the old idea prevailed that elaborate buildings were essential for all successful treatment. Many instances occurred, where these hospitals, established in a church or convent, became the centre of small-pox cases, which spread rapidly before the formality of removal could be completed. A single case, near Metz, in a church, spread to over a hundred cases before separation was finally secured. The idea prevailed that permanent housing was of first importance.

Baron Munday, of Vienna, organized an independent medical service, called the Order of the Red Cross, which adopted many of the American plans, with excellent success, and lessened mortality. The French surgeons, when the government changed, became more independent and personal in their hospital management, adopting many changes and innovations, but the Prussians continued without change until the last hospital disappeared.

In the treatment of wounds the Prussians were heroic, and confined to a few rules, from which they rarely varied. In operating, little attention was paid to time and circumstances. They operated well, but were hemmed down to a certain routine of after-treatment. Conservative surgery received no attention, and nearly all gun-shot injuries of the extremities were treated by amputation.

The French were more bold and independent, and at the same time conservative. In some hospitals new methods and plans were freely tested, but generally, in both armies, all treatment was according to certain established methods, and its application was made without much regard to any special case.

In the Prussian service all hygienic responsibility ended when a warm hospital building was secured, irregardless of bad air. Ventilation has always been considered of secondary importance on the continent. In Paris the general distribution of the wounded among private families, and the many public buildings devoted to hospital purposes, lessened this evil to a great extent. From the Prussian front, to Berlin, hospitals of all kinds were crowded and wanting in ventilation. As a result, pyæmia, typhus, etc., were always present. In Paris these affections prevailed, but often from the want of proper nourishment, and general depression resulting from the siege; but in the Prussian service it was want of hygienic care and management. At one time, the railroad sheds along the Lyons railway were used, by necessity, as hospitals. The German press raised a great outcry against the exposure of the wounded with nothing but sheds to protect them, yet the statistics showed not a single case of pyæmia or gangrene in them, and its existence in churches and close buildings in the vicinity.

Alimentation was considered of secondary importance in both armies. The Prussians at length made changes, increasing the diet lists, but the French, from necessity, remained the same. The diet lists of both armies were based on teachings half a century old. The Prussians made exactness of time and quantity of equal or more importance than quality. Stimulants, soups and coffees were used moderately; with the French more freely. Bathing and cleanliness were also of secondary importance, and attended with excessive formality. To the Prussians pure air and water seemed of no importance; the French entertained no settled convictions on this subject. The medical instruction of both armies, given to the surgical staff, were exceedingly minute, and so often in conflict with the actual necessities of field service as to be ignored by surgeons who dared. Many of the surgeons were unused to independent action, and were in a continual struggle to follow directions and avoid colliding with the military; hence the formality and irregularity of their service. After the fall of the monarchy the French improved, and were much in advance of the Prussians.

The results of hospital treatment were tabled carefully by the Prussians, in the aggregate, but the histories of particular classes of injuries were not followed or recorded. In the French service certain statistics were gathered, relating to particular cases, of real value, from their accuracy and reliability. Through want of system and organization, the statistical results of both armies will be of minor importance, compared to what they might have been. This will give the reader a general idea of the medical departments of both armies and their workings during this war, and also a better understanding of the influence and teachings of the American ambulance.

The universal exposition of Vienna, in 1867, exhibited to Europe the progress Americans had made in military hygiene, in the models of board and tent hospitals, stretchers, ambulances, and means for alleviating the wounded on the battle field. As practical advances in science they attracted no attention, and when the war broke out, three years later, both France and Prussia went into the field with the same medical resources of half a century ago. The medical staff, assistants, stretcher bearers, in discipline, numbers and efficiency, remained the same. The presence of typhus, gangrene, purulent effections, etc., from overcrowding, had followed every army, and was considered concomitant, and beyond all possible means of eradication.

The rudeness and want of system displayed in the French service stimulated some enthusiastic Americans to put in practice the American hospital system, as an independent sanitary organization, starting from Paris. The government, recognizing its want in medical organization, encouraged these volunteer efforts. Dr. Evans, the projector, proposed to have a number of separate hospitals, both stationary and temporary, following the army, but the rapid shifting of events limited the enterprise to a single hospital in Paris. It was put in operation September, 1870, and closed in February, 1871. Dr. John Swinburn, formerly port physician of New York, and a surgeon of high reputation, who was traveling in Europe, consented to take charge. The history of this hospital (called ambulance) has been recorded long ago, in Dr. T. W. Evans' "Sanitary Associations during the Franco-German War of 1870 and 1871, vol. 1, London, 1873," and Dr. Gordon's "Lessons on Hygiene and Surgery from the Franco-Prussian War, London."* We propose to show some of its influences on the military hygiene and surgery of Europe, now beginning to be realized:—

In army field hospitals the American ambulance has caused a great revolution. These field hospitals, created by the necessities of the battle-field, where the numerous wounded cannot be sent back without great mortality, are continually changing with the army, demanding skill and promptness in their organization and management, equal to that of a military campaign. The first problem is suitable shelter. The American ambulance indicated that tents and board barracks would answer this want better than the most elaborate buildings; that they could be used at all seasons of the year, and with very simple appliances be uniformly heated. All offers of nunneries and palaces were refused by the American ambulance, who preferred an open square, where tents could be used and barracks built. These tents were heated from a trench through the centre of them, beginning with a furnace at one end, and terminating in a chimney at the other. This flue was composed of loose brick, which allowed thorough radiation of heat, making the soil about and under the tent a medium for its transmission. The ventilation and heating was complete, and created much surprise. To treat wounded and sick men, in mid-winter, in such buildings, when more permanent ones could be had, was a bold innovation, and its success a matter of doubt. Tents and barracks were erected at different points during the campaign, but were abandoned in cold weather. Statistics showed that more recoveries and better results followed all cases treated in tents and barracks, and also that they furnished most of the exact conditions for returning health. Gangrene, pyæmia, and many other complications were practically unknown here.

The Prussians went into the campaign with no tents of any kind, but trusted to improvised hospitals on the line of march. Later, they erected large barrack hospitals at Berlin, but these were wanting in details, and their management was clumsy and formal, with no positive results.

The American ambulance taught Europe that exposure to the open air was less dangerous

*We are indebted to these works for many of the facts mentioned.

than bad ventilation, and that armies could carry along their tent hospitals, and treat the wounded and sick with greater success than by any other means. The Prussian army has been supplied with hospital tents, and the French have lately concluded a similar contract. Drawings and models of board barracks are discussed and studied by engineers, and when the next great continental army takes the field, it will be equipped with tents after the model of the ambulance and the teachings of our medical service.

Next to shelter, the ambulance indicated that nourishment was of the first importance. Wounded of all degrees were given hot soups, wines, coffees, at first, before the formal dressings were begun. In the ambulance only the most urgent wounds were dressed at first. Nourishment and rest were considered of prime importance, before the dressing, or even operations, were performed. A surgeon visiting the ambulance was surprised to find a man with a shattered leg, done up rudely, sleeping sound, before the operation. He had been given nourishment and encouraged to sleep for an hour or two. This was radically different from all European experience. The wounded were hurried back as far as possible from the battle-field, and given nourishment when the dressings were complete, and their destination reached. The French provided wines and stimulants, but gave them with no regular system. Severe cases, when operations were performed on the field, were treated with stimulants, but nourishment was generally given only at the stationary hospital. The famous coffee wagon used during our late war, in the army of the Potomac, was taken to Paris and used by our ambulance, along the lines, at the siege. Shortly before the close of hostilities, a shell exploded, tearing it to pieces. This wagon was purely a Yankee invention, and was a pioneer of wonderful influence, consisting of boilers for making and keeping coffee hot, mounted on four wheels, and driven round on the field, supplying all, both wounded and well, with fresh coffee. Dr. Evans had this wagon restored, and it is now on exhibition at Paris, as one of the trophies of the war. Dr. Swinburn urged that tents, for coffee and soups, should be put up on the battle-field, and all the wounded supplied, as well as the worn-out soldier. Also that these tents should follow the army. The diet of the ambulance was liberal and varied, and informal as to time and circumstances. The late regulations adopted by the French army provide for a traveling kitchen, to go along and furnish soups for the men in the field, and in the rear of engagements. The English have also adopted similar methods, having the same end in view. In the transportation of the wounded, the ambulance had many improvements new to Europe. The wagons used were of the Concord model, so familiar to Americans, but for lightness, ease of draught, and comfort to the wounded, were immeasurably ahead of European models. Both the French and Prussian service have adopted this pattern, and a large number have lately been completed at Berlin, under the care of an American speculator.

The stretchers used were of all shapes and patterns. The American model, with Dr. Swinburn's attachment of iron spurs and rings, by which extension and counter-extension could be made, was used. For gun-shot injuries of the extremities, particularly fractures, this is unequaled. The patient can be placed on this stretcher, and moved with impunity, and without any disturbance of the injured bone. Fractures of the femur can be successfully treated on this, under very unfavorable circumstances. This stretcher, consisting of a light wooden frame, covered with canvas, and iron spurs from each end, has attracted much attention, and received many warm praises, particularly with Dr. Swinburn's attachment. Both French and Prussian governments have put them among their army appliances, and the English army in India are using them.

Conservative surgery has been regarded as an American idealism in Europe. The American ambulance showed that amputation, in gun-shot wounds of the extremities, was only exceptionally necessary. Injuries to the femur had always been amputated, but the contrary was indicated, in several cases treated at the ambulance without operation. The use of conservative means, to allow the limb rest, and nature to indicate how far restoration would go on, was the practice adopted. Cold water dressings were used freely; carbolic and nitric acids, and oakum as a styptic dressing, drainage tubes, etc. Some of these were new, others familiar. The simpler dressings were always in use at the ambulance, and more popular. The treatment of amputations with moist and hot cloths, covered with oiled silk, excited some comment.

After excision or operations on the extremities, it was customary to take large linen cloths, soaked in hot water, applied neatly, and covered with oiled silk. This was very grateful, and caused an even warmth, stimulating to the wound. This is now used in French hospitals, and generally over the continent. Dr. Swinburn was enthusiastic to test all our American methods, and show Europe their practical value, and particularly our conservative surgery. The attendants and stretcher bearers were instructed to bring to the American ambulance, as far as possible, the worst cases that could be found. The circumstances under which they were treated were adverse, during the latter part of the siege. The depressions from reverses on the field, and insufficient fuel, and poor diet, increased the mortality greatly. The wounded had frequently been exposed on the field for weeks, to wet and cold, without protection, and with poor diet, changing suddenly from place to place, to meet the enemy; being made up largely of volunteers, who had only a few months' experience, they were illy fitted to survive the shock of wounds or the drain of an operation. The mortality was greater at the close of the war than before, owing to these circumstances.

The Prussians suffered less, although their greatest mortality prevailed from the frequent removals of the wounded back, as it was termed, "cleaning out the battle-field." In the practical management of hospitals, France and Prussia has learned much from the American ambulance, particularly in the simplicity and readiness of improvising for the occasion. The Prussian method was excellent in its exactness and regularity, but formal and impractical. As an illustration, about forty wounded sent to a hospital near Berlin, unannounced officially, from neglect, remained in wagons without the building for eight hours, through a cold rain storm, until the proper papers of admission were made out.

The French were less formal and more sympathetic, but lacked regular systems or methods. Nearly every hospital in Paris, and the many thousand families who treated the wounded at their homes, acted on their own theories of the demands of the occasion. In the American ambulance, from the surgeon in charge down, a species of independent capacity for any emergency prevailed. No work was left undone by neglect from those responsible. Nearly everything, except surgical operations and important dressings, was performed at the time, by some one. A kind of informal care was laid down, giving every one a certain responsibility, which might any time assume great proportions, making it necessary that they should think and act independently. This was new to Europe, where attendants never acted in a higher capacity under any circumstances.

In this and in many other respects, this ambulance, with its free and informal plans of management, early attracted attention from leading authorities. First the secular press examined and wrote enthusiastically about its simplicity and success. Then the leading medical professors came, such as Nélaton, Ricord, Jules Guerin, Demarquay, and others, as regular visitors, from week to week, noting its progress.

Dr. Gordon, English Inspector General of Hospitals, has given much space, in his "Lessons on Hygiene" (London, 1873), to the unique and excellent methods pursued by this ambulance, acknowledging, with great candor, its influence in solving many of the problems of military hygiene and surgery.

M. Sarcey, a distinguished author,* made an extended comparison between the American ambulance and the hospitals about Paris, showing that it was, in practice, a half century ahead.

The editor of *Gazette Medical de Paris*, in a long article, comparing the results of the various ambulances about Paris, pronounces the American ambulance superior to all, in arrangement, ventilation, and uniform temperature; also in other details of material management, and particularly in its hygienic methods and conservative surgery. Closing his article as follows:—

"A revolution in our hospitals is necessary and imminent, and has already begun. * * * Let us hope that this revolution will be complete; that in a few years' time not a stone of our present hospitals will be left standing, unless, indeed, those buildings be devoted to some other purpose."

The *Union Medical* concluded a long editorial in the following strain:—

"It was desirable that the experiment should be made on a large scale, as to the value of temporary structures for the sick and wounded,

* Who wrote the history of the Siege of Paris.

compared with convents, old buildings, and ordinary hospitals. It was necessary to abandon the old routine and test the new system, which had already been tried in the United States during the four years' civil war, and whose advantages have been recognized by all the surgeons in the country. Let us hope this new experiment will not be fruitless, and that it may confirm the results already obtained."

In an article before the Faculty of Medicine, at Paris, by M. Monsnereau, on the merits of the principal military hospitals about Paris during the siege, the following statement occurs:—"I feel justified in affirming that the American ambulance is the best of all the ambulances established at Paris. This superiority has been admitted by our most eminent surgeons."

Many other high compliments, from distinguished authorities, were given through both the medical and secular press. Accurate drawings and copies were made of the ambulance and its appliances.

Dr. John Swinburn received the medal of the Cross of the Legion of Honor, a very high compliment, rarely given to a foreigner. No man more richly deserved it, for the work of organizing an American hospital in a strange country, depending upon voluntary contributions, and personally managing all its details, with prejudices to overcome, and assistants to educate, with no pay or reward, was a task of hereulean proportions, which only an American would undertake.

This ambulance, organized and conducted under such adverse circumstances (although presenting nothing new, in any respect, to American surgeons who did service in the war), has done more to advance military hygiene and conservative surgery in Europe than the teachings and experience of a century. The lessons of our civil war were ignored, and only when their great truths were illustrated at Paris, in a single imperfect hospital, did the savans of Europe realize that America was in advance. The medical departments of European armies are in a condition of change, and when the next war storm bursts, we shall see an imitation of the American ambulance in many of its workings; and from many a battle-field and hospital shall come tides of grateful emotion for the grand contributions of America to military hygiene and conservative surgery.

A CASE OF PHLEGMASIA DOLENS, TERMINATING IN GANGRENE OF THE FOOT—AMPUTATION, CURE, RECOVERY.

BY E. A. OVERHISER, M.D.,
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The following case presents some points of interest, and in its termination is one of unusual occurrence.

Mrs. A., a large, fleshy lady, 34 years of age, was confined with her eighth child the 12th day of April last; labor said to have been of short duration, but quite severe. She did not have medical attendance; the placenta was expelled in due time, entirely.

On the 20th of April I was called to see her; found her with fever, pulse 120, temperature 99·5, severe rigors, headache, and severe pain in the left limb, which was swollen, and tender, especially along the course of the femoral vessels. The uterus exhibited some tenderness, but there was no fetid discharge; in fact, there was but little discharge at all; pressure on the iliac veins produced exquisite pain; bowels were constipated, and urine scanty and high-colored.

I ordered a cathartic, and the following to be given:—

℞.	Aconite, tinct.,	℥ss	
	Potash, nitrate,	ʒij	
	Hyoscyamus, fl. ext.,	ʒj	
	Syrupi simplex, q. s., fiat,	℥iv.	M.

Sig. Teaspoonful every two hours.

Dover's powders, 5 grains, every four hours, after the bowels were moved, to quiet pain. Locally, I prescribed lotions of lead and opium, and poppy fomentations applied warm.

April 22. Found her more comfortable; pain less severe; tenderness less, but swelling greater. Pulse 90; temperature 99°. Her bowels had been evacuated well, and she had perspired freely and slept during the night. She remained much in this condition until the 27th, when she began to show signs of rapid improvement. Pulse became nearly normal, appetite returned, swelling of limb began to disappear, and a rapid convalescence was anticipated.

On the 3d of May, through imprudence of the nurse, and contrary to orders, she was allowed to get up and go to the table for dinner; ate heartily, one article of diet being three fried eggs. The 4th I was sent for. She had passed

a fearful night; excruciating pain in the limb, which had become enormously swollen; tenderness great along the limb and within the pelvis. Pulse now 120, appetite gone, and truly an alarming case.

She was put upon tonics, quinia and iron. Opiates were given largely, but without much relief. The pain severe, giving no rest by day or night; fomentations of belladonna, hops, etc., were used. The swelling, by the 10th of May, had become truly frightful. The labia pudenda hung down like immense bladders. These were punctured, as also was the limb, and the draining of serum from these was in large quantity.

She continued in about this state until the 20th, when I first saw evidence of gangrene on the inner side of the heel. This rapidly spread until the 22d, when it had involved the entire foot. I at once called Dr. Phinney, of Painted Post, N. Y., in consultation. We agreed that amputation was her only chance, and this was small.

She was now much exhausted. Pulse 130 and feeble; still no symptoms of approaching dissolution. She was given largely of quinia, brandy, etc. We thought it advisable to wait until a line of demarcation was fully formed. This line was quite well pronounced on the 23d, extending on about a level with the malleolus on the inner side, and just below on the outer side of the foot.

The 24th, Dr. May, of Corning, was called with us, and it was decided to amputate. She was put under the influence of chloroform, took it kindly, and with but little effect on the pulse.

It was thought proper to amputate at the lower third. Owing to the swelling the femoral artery could not be felt, and it was decided to tie as fast as the arteries were separated. An anterior flap was made, and when the knife was introduced, in forming the post flap, and carried down, a large amount of pus and broken-down material followed, instead of blood, as expected. In fact, the whole calf was one large abscess, from which poured, I should think, a quart of pus, etc. The large arteries were perfectly closed; there was no hemorrhage except from some small arteries; these were secured. The abscess was well cleansed, and the flaps were left open for a time, to favor the discharge.

She came from under the anæsthetic well, was largely stimulated, and began to improve almost immediately. On the third day the flaps were put up, except opportunity for drainage of the abscess, which continued to discharge for several days. When the flaps were entirely closed, adhesion took place rapidly. The patient improved in strength and flesh, the swelling disappeared rapidly, and on the 18th day of July she was discharged with a good stump, and health completely restored.

There has been a great deal of comment and criticism in regard to this case. The most serious was that we should have amputated further up, so as to have gone above the abscess. But we should have had to amputate at the knee to go above it, or even above the knee, and all tables of mortality after amputations show a larger per cent. the nearer the body the amputation is performed. Also, it was said that we needed a better circulation, and should have amputated higher to reach this. And again, that we did wrong in leaving the flaps down so long. But the sequel shows that we could not be far from right.

Hospital Reports.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

ABSTRACT OF A CLINICAL LECTURE DELIVERED BY LOUIS A. DUHRING, M. D., CLINICAL PROFESSOR OF DERMATOLOGY.

REPORTED BY DR. ARTHUR VAN HARLINGEN, CHIEF OF THE SKIN CLINIC.

Rosacea.

The patient, an Englishman, sixty years of age, and a shoemaker by occupation, is a fine hearty-looking man, apparently in perfect health, in spite of his sedentary occupation. He states that he has never suffered from sickness of any kind, with the exception of slight dyspepsia, indicated by sourness of the stomach with occasional eructation. He is perfectly temperate in his habits. The affection for which he seeks relief began ten years ago, when it showed itself at first as a circumscribed redness covering the alæ nasi on either side, which extended subsequently, in a very gradual manner, until the whole of the nose and some portion of the cheeks adjoining became involved. The progress of this general and diffuse redness was accompanied by outbreaks of papular acne, coming out in successive crops of a few papules at a time. Of late the disease has invaded the forehead, assuming here both the form of a diffuse redness of the skin and of papular acne. The patient states that he suffers frequently from cold hands and feet.

The patient's present condition is as follows: He is apparently in perfect health, with the exception of his skin trouble. This is confined

to the face, and appears as a light wine-colored tint of the skin (perhaps dusky red would better describe the shade), involving the whole of the nose, and extending, somewhat less intensely colored, over the cheeks on either side, covering an area of two or three square inches, and fading gradually out toward the borders.

The coloration ceases somewhat abruptly toward the root of the nose, and neither is the forehead affected, nor is any other portion of the skin excepting those mentioned. Slight pressure with the finger causes this coloration to disappear for a moment, and when the pressure is removed the color slowly returns. Over the upper portion of the nose a few very small capillaries may be observed in the skin, and the orifices of some sebaceous glands are enlarged and patulous. With the exception of a very few comedones, no eruption whatever breaks the smoothness of the surface, which is somewhat glistening. The whole organ appears slightly enlarged. There is absolutely no uncomfortable sensation; neither burning nor itching.

The affection before the class, Dr. Duhring remarked, is a common one, and is usually known both as rosacea and (improperly) as acne-rosacea. The subject has not been made as clear as it should be in the text books, and much confusion exists in the minds of many persons in regard to the matter. The fact to be remembered is, that there are two distinct diseases, acne, a disease of the sebaceous glands, and rosacea, a disease of the blood vessels. Commonly these two affections occur simultaneously, when we have acne-rosacea. They may, however, occur alone, as in the present case. An instance of acne-rosacea will be remembered as having been before the class a few weeks ago, and on several occasions previously, during the winter. That patient had had, in the first place, rosacea of some years' standing, and had recently suffered, in addition, from superadded acne.

Rosacea is a disease of the skin, characterized at first by diffuse hyperæmia, and subsequently by enlargement and increase in the number of the superficial cutaneous capillaries, forming in reality a new growth. Exposure to cold, or drinking alcoholic liquors, causes a nose affected with this disease to become darker in color, deep red, almost purplish. One would naturally expect to find a nose so red as this hotter than the surrounding tissues; such, however, is not the case; on the contrary, it is abnormally cold; so much so that you may distinguish it by the touch. The patient himself recognizes this condition, which is dependent upon stasis in the blood-vessels—an impeded, sluggish circulation. When this condition of hyperæmia goes on to permanent enlargement and multiplication of the blood-vessels, the latter may occur to an enormous extent, the nose becoming hypertrophied, and in such cases we have the deformity known among the Germans as *Pfund-nase*—pound-nose.

Rosacea is not necessarily the result of customs of intemperance; it may be, and often is, found in persons of the most abstemious habits, and is frequently observed, to a slight extent, in females, between the ages of eighteen and thirty. Alcohol, to be sure, is one cause, but there are others, some of which are not very well understood. Rosacea is frequently found in chlorotic and anæmic persons, and those who are subject to cold hands and feet.

As to the pathology of the affection, there are three stages. The first is a condition of stasis, more or less marked, and of some considerable duration. The second stage is characterized by enlargement of the blood-vessels, not very marked at first, but gradually becoming more and more so. The third stage shows marked enlargement of the vessels, which may be observed under the skin, together with hyperplasia of the connective tissue.

A common locality for rosacea to show itself is upon the nose and cheeks adjoining, but it is occasionally found upon the forehead, rarely upon the chin, and never upon any other part of the body; it is, in fact, emphatically, a disease of the nose.

In regard to the treatment of rosacea, this must vary according to the condition, that is, according to the presence or absence of acne with the rosacea. In the present case, the redness of the nose is dependent upon venous stasis; what is needed, is a stimulant of some kind. The galvanic current, or stimulating washes and ointments are indicated. Prominent among stimulants is sulphur, applied in a lotion, or in the form of ointment.

Sulphur is a remedy which has fallen into undeserved disrepute among many dermatologists. This may possibly be on account of the fact that for a long time this remedy was used indiscriminately for every skin affection. Even now, in France, it is used for all manner of disease, in the form of sulphur baths.

In the present instance, the employment of a mild sulphur ointment, one drachm of sulphur to the ounce of lard, has been enjoined. Under the use of this application the patient is doing very well, and will probably be very greatly relieved by the end of a month or six weeks. Dr. Duhring remarked, further, that he knew of no other remedy which would accomplish a like result in the same time. Cases of this kind go about the streets unrelieved, because many practitioners believe and say that nothing can be done for them.

As to other remedial measures, if the functions are disordered, these, of course, must be attended to; tonics, aperients, and the like, may in some cases be necessary. When the cutaneous capillaries are greatly enlarged, minute incisions may be made into them. This is not necessary in the present case. The prognosis is favorable. Three months ought to show a great change for the better in our patient's appearance.

[The patient continues to report from time to to time, and is growing steadily better.—Rep.]

EDITORIAL DEPARTMENT.

PERISCOPE.

Incontinence of Urine.

Dr. F. N. Otis, of New York, writes to the *Lancet*:—

One of your correspondents asks for information as to the treatment of incontinence of urine, and half a dozen responses are made. A little more careful perusal of the department of *The Lancet* devoted to "Notes, Short Comments, and Answers to Correspondents," would have caused some consideration of the note on "Ritual Circumcision," in the issue of Jan. 9th, where Dr. A. Mayer says, "It is also a known fact that circumcision cures enuresis nocturna, when caused by a prepuce with a narrow opening." The fact that of the six respondents, two recommend belladonna, and the other four as many different modes of managing the difficulty, would show that the *cause* had not been looked after. My own experience, which has been extensive, has convinced me that enuresis in youth and in adult life is frequently due to a contraction either of the preputial orifice or of the meatus urinarius, and that sedatives and narcotics may palliate, but do not cure. Circumcision, or division of the preputial orifice, when the prepuce alone is at fault, will give prompt and permanent relief; when this does *not* give relief, the meatus urinarius will often be found constricted, and a relief of this constriction will give the desired result. Let me cite a case or two.

G. H——, a lad of ten, had been troubled with nocturnal incontinence two or three times in the night, and also often during the day, for two years. Belladonna, in quarter-grain doses, relieved him temporarily, but on cessation of the drug would return. He was found to have redundant prepuce with contracted orifice. I circumcised him in October, 1874, found some adherence of prepuce to glans, and also a very small meatus urinarius. This I enlarged to 22 Fr. From date of operation he was completely relieved for four weeks, when the difficulty reappeared. I then made another examination, and found the meatus recontracted to 16 Fr. I then redivided it to 24 Fr. Since then he has had not the slightest trouble, and, furthermore, has been in better health than for several years.

I have just received a letter from Dr. C. H. Mastin, of Mobile, La., which I desire to add to this statement, and let your correspondents judge of its value. Dr. M. is one of the leading surgeons of the Southwest: "Following I furnish you the brief notes of a case which I fancy will interest you, as it bears so strongly on your theory of reflex irritation, which I, for one, believe is ere long destined to become a fixed surgical truth. On the 29th of last month (November, 1874), I was requested to see a little boy, eighteen months old, the son of a gentleman of this city. The child was very delicate, pale, fretful, no appetite, languid, complained of pain whenever he passed his water. He was wakeful at night, and in the nightly habit of wetting his bed during sleep. From the description given me I was led to believe that the child had stone. Upon examination, however, I failed to discover stone, but found that the child had an elongated prepuce, the orifice of which was very small, congenitally contracted, so small, indeed, that there was difficulty in passing an ordinary silver probe. I was satisfied that the case was one of reflex irritation from narrowing of the preputial orifice. The physician with whom I saw the case, in consultation, laughed at this diagnosis; but, inasmuch as there was an evident obstruction to urination, consented to a free division of the preputial orifice. The results of this simple operation proved the correctness of your views and of my diagnosis established thereon. The very next day my little patient was decidedly improved, ate well, slept quietly, had no incontinence of urine, and up to to-day (one month from the date of operation) he has remained perfectly well in this respect, and his father says he has gained eight to ten pounds of flesh, and is in better health than ever before."

Laws of Heredity.

The following remarks on heredity are from the late work of Dr. Ribot, to which we have frequently alluded:—

"Heredity influences the internal conformation no less than the external structure. Nothing is more undisputed than the heredity of form, size, and anomalies of the osseous system, and every-day experience proves the heredity of all the proportions of the cranium, thorax, pelvis, vertebral column, and the smallest bones of the skeleton Even the heredity of excess or defect in the number of the vertebræ and the teeth has been ascertained. The circulatory, digestive, and muscular systems obey the same laws which govern the transmission of the other internal systems of the organism. There are some families in which the heart, and size of the principal blood-vessels, are naturally very large, others in which they are comparatively small, and others again which present identical faults of conformation. Lastly, heredity regulates the proportions of the nervous system. It is evident in the general dimensions of the brain, the principal organ of that system; it is often apparent in the size, and even in the form of the cerebral convolutions. This fact was observed by Gall, who thereby accounted for the transmission of men-

tal faculties. * * * The blood is more abundant in some families than in others, and this superabundance transmits, or may transmit, to the members of such families, a predisposition to apoplexy, hemorrhage, and inflammation. Thus there exists in some families such a liability to hemorrhage that even the prick of a pin may cause in them a flow of blood that cannot be checked. * * * Heredity governs the subordinate no less than the dominant characteristics: thus, fecundity, length of life, and those purely personal characteristics which physicians call idiosyncrasies, are hereditarily transmitted. * * * There are also, on the other hand, many families in which the hair turns gray in early youth, and in which the vigor of the physical and intellectual faculties fails prematurely; in others, early death is of such a common occurrence that only a few individuals can escape it, by great precaution."

The above observations are becoming more fully recognized and acted upon, especially by insurance companies. As a commentary, then, on the author's remarks, we may remark that not only are normal peculiarities transmitted from father to son, but also diseases run in families, or at least tendency to them, for instance, phthisis. Moreover, an external likeness, make of body, even walk, manner of speech, etc., may be well supposed to be associated with an equal similarity of constitution. The conformation of body is dependent partly on inheritance, but is, however, largely affected by external conditions. As a rule, all men might be divided into two classes, classified according to their family history, viz., (1) short-lived robustness, and (2) comparatively frail longevity. Inherited disease usually appears at about the same age in the inheritor as it did in the person from whom it was inherited; but the general rule is that inherited fatal diseases have their issue at about the same age in a subject as that at which a near ancestor died.

Over-work or Over-play.

The eminent Dr. Samuel Wilks, of Guy's Hospital, London, has not much sympathy with the theory of over-work, of "wear and tear," so popular to day. He says, in an article in the *Lancet*:—

It might be thought that medical men, who see only the ailing minority, can be no better judges than others of the working powers of the community at large. But, on the other hand, it must be remembered that the doctor is a kind of confessor: his breast becomes the repository of the secrets of those who would in no other way divulge them. Every medical man must be aware how very large a number of patients declare that they suffer from overwork, no matter in what sphere of life they may be placed. If the husband is too modest to declare the fact himself, his wife who accompanies him passionately speaks for him. If the lady comes for advice, her daughters declare how family matters so entirely engross her attention, that their mother's energies are overwrought; that if she would only consider herself as much as other people all would be well. If the daughter is the patient, the mother requests the doctor to insist upon the curtailment of some of her arduous duties, such as the cottage visiting or Sunday-school teaching. The daughter sits, a model of self-abnegation, and softly denies the impeachment. This is the daily burden of the song of a host of people; and it being no doubt the experience of other medical men as well as myself, it might be as well to ask what it all means? What amount of sympathy they receive generally at the hands of the profession, and to what extent the prescription "you must not work so hard" is given, are, of course, impossible to know.

The question as to what amount of work can be performed by each patient must come daily before the medical man, and he is forced to answer it. The question is generally put by those who have already made the assumption that they are overworked, and therefore are willing to receive but one answer. Apart, however, from prescribing in accordance with the wishes of our patients, the subject is important, and one fruitful of discussion. The amount of work which each man or woman is capable of performing is dependent on their temperament and especial powers, and can only be gauged by their individual capacities. There are some young men whose brains are so weak that they cannot bear the pressure which is put upon them by a little sustained thought. Every year I see one or two medical students obliged to leave their chosen profession and devote themselves to an out-of-door active life. They are quite unable to apply themselves to studies which require any concentration of mind, and at last they throw them up. I have seen the same in those who have intended to follow the law, and more than one banker's clerk who could not bear the drudgery of the ledger. Whilst writing these lines I have heard a young man, a Government clerk, speak of overwork, although his office hours are only from nine o'clock until three. To discover the amount of brainwork proportionate to each individual lad is a difficult task; but the cases I have mentioned show that there are persons who cannot sustain any mental tension. At the same time there are those in business, and the more the pity, who would have adorned any of the professions. I have known more than one mind made in a rare scientific mould entirely wasted. Apart, however, from these individual cases, which must be judged on their own merits, I am anxious to know whether medical men generally accept what seems to be a very popular opinion of the day, and which has been thought to be expressed in Mr. Greg's lecture, that society at large is really suffering from an amount of work, physical and mental, which is injurious to the individual, and therefore to the human race. That an opinion of this kind

largely prevails I gather from conversation, and from the public prints; but lately I saw quotations from the sermon of a well-known preacher, in which he declared that our asylums were filled with mad people, owing to the overwrought state of the nervous system in the present hard-working age. Now, if the question be put thus broadly—Are people suffering from overwork? I, for one, should have no hesitation in saying, No; but, on the contrary, if both sexes be taken, I should say the opposite is nearer the truth, and that more persons are suffering from idleness than from excessive work. Medically speaking, I see half a dozen persons suffering from want of occupation to one who is crippled by his labors. I have, therefore, very little sympathy with the prevalent notion that nervous and other diseases are due to overwork; and, as regards the statement of the preacher above mentioned, I apprehend he never thought of testing the truth of it by a visit to the public asylums, for he might then have been impressed with the sight of the numbers of the lower classes and the altogether unlettered persons confined therein.

Acute Pemphigus.

At a meeting of the Clinical Society of London, Dr. Southey read notes of a case of Acute Pemphigus. The patient was a somewhat hysterical general servant, nineteen years of age, who had been exposed to some privations before her admission into St. Bartholomew's Hospital on November 19th, 1874. Previously her health had been good. Less than one month before a small bleb formed on the side of the right hand. Three days before admission she was feverish, complained of sore-throat and general pains, and an eruption of small rounded red spots, of variable size, appeared all over the body. When admitted many of these were distinct bullæ, the temperature was 102°, and the eruption was thought to be syphilitic by the house-physician, who ordered iodide of potassium. The next day, after she had had a warm bath, the bullar eruption became more copious. The bullæ were of all sizes, and each surrounded by a halo of redness; several occurred on the cheeks, angles of mouth, lips, and chin, on the dorsal and palmar surfaces of the hands and between the fingers, on the arms and legs, chiefly at the flexures of the joints, also largely on the back of the trunk, abdomen, and thighs. Some of the blebs measured as much as one inch across; their contents were clear or opaque, alkaline, and albuminous. The tongue was aphthous, throat sore, deglutition painful. There was no collateral evidence of syphilis, which was set aside as a probable cause. The pulse was 117, and temperature 101·7°; bowels were relaxed; urine, of specific gravity 1038, contained a large excess of earthy phosphates. Salines were given, and fluid nutriment. The whole surface of the body was swathed in cotton-wool soaked in carbolized oil, one or two of the blebs being injected with nitrate of silver. Sleep was procured by morphia. The patient complained much of cold. Fresh bullæ appeared daily, becoming converted, in the points of pressure, into superficial sanious sores. At length, when she was in a very prostrate condition, she was lifted into a warm bath (at 100°) and kept in it for twelve hours. This was attended with the greatest benefit; she slept in the bath, took more food, and gained strength. The bath was repeated on the three following days with marked benefit, when a relapse occurred on December 3d, with great prostration and delirium. The urine at this time was high-colored, of specific gravity 1045, and, treated with nitric acid, became of a black color, with evolution of nitric oxide and oxygen, due to the presence of indican, or some allied pigment. The quantity of indican varied with the degree of prostration. The carbolic dressing was changed for carron oil, in the belief that the nervous prostration might be due to the former. She thence rapidly improved, the quantity of coloring matter in the urine subsiding, and in a few weeks she left the hospital, bearing numerous scars on the body. There has been no relapse.

Second Attacks of Measles.

A writer, Dr. E. S. Symes, in the *British Medical Journal*, discusses the question, "What degree of probability exists of an individual taking measles a second time?" It is difficult to see how we are to estimate the degree of probability where so much depends, first, upon individual susceptibility, and, secondly, upon adventitious circumstances. It is generally admitted that while, on the one hand, but few are insusceptible to measles, so, on the other, it rarely occurs a second time: yet in a tolerably extensive practice we all of us occasionally meet with such cases, and I beg to offer the following for what they are worth.

Only a few weeks ago I was called upon, in the Isle of Wight, to see Miss M., a native of Jamaica. Her flushed face, reddened eyes, and general catarrhal symptoms, with the eruption of small, though as yet detached, spots covering the face, and already extending to the chest, at once indicated the nature of the affection: but my suggestion was met by the assurance that she had already had measles very badly since leaving Jamaica, that is, since she had arrived at puberty; moreover, that she had not recently been exposed in any way to the contagion of this, nor, indeed, of any contagious disorder. By the following morning, however, the rash had extended all over the body and limbs, while the crescentic patches were very distinct on the chest. There could no longer be the slightest doubt that she had measles for the second time; indeed, she herself recognized it as just what she had had before; and, in short, the disease ran its ordinary course, requiring but little treatment, but quite as severe as is usual in adults.

On closer inquiry, I learned that in traveling to her destination, just five days previously,

there had been in the same railway compartment a lady and her little boy, the latter of whom was just recovering from "an illness." The mother was very careful to prevent his taking cold, so the carriage windows were kept close shut. The child, who was restless and weak, insisted upon standing at Miss M.'s window, leaning on her for support, so that she had the full benefit of close contact and bottled-up emanations. And if, as we may, I think, safely assume, the child was just recovering from measles, it is only another instance of the reckless want of consideration for others with which contagious convalescents are taken about in public conveyances

It is worthy of note, that Miss M.'s married sister, who was in the same carriage, and who afterwards nursed Miss M. in her illness, just as she had formerly nursed her own two children in measles, even sleeping in the same room with them, never contracted the disease. Here, then, in two sisters, we have one presenting a remarkable predisposition, and the other an equally remarkable indisposition to it.

Seminal Concretions.

In the *Gazette des Hôpitaux*, for September, there is an interesting case recorded by M. Reliquet, of concretions in the vesiculæ seminalis, which caused extreme pain and obstruction to the seminal flow. Professor Robin, who examined the bodies, describes them as being "opalescent and transparent, with a diameter of two millimetres. Under the microscope their substance is marked with very fine and very short parallel striæ, and very close together." Acetic acid made the striæ disappear, and rendered the bodies quite translucent and apparently homogeneous.

The presence of these bodies was discovered by examination with the finger in the rectum, and a catheter in the urethra. The patient had suffered for two months. The examination and passage of the catheter caused great pain, and thereafter the concretions were passed, the vesiculæ having been apparently stimulated to powerful contraction by the presence of the instrument in the urethra. M. Reliquet says that he has searched in vain for an exactly analogous case; the bodies passed, in the instance he records, being larger and harder than those described by others.

Facts about Uterine Involution.

In the Edinburgh *Medical Journal*, Dr. A. Serdukoff lays down the following maxims about uterine involution:—

1. Involution of the uterus goes on more rapidly during the first few days of the puerperal period than it subsequently does.
2. Involution of the uterus of healthy women goes on well and with regularity.
3. Involution, where the uterus is the subject of disease, such as metritis, endometritis, or parametritis, goes on more slowly, and this varies with the amount of disease.
4. The permanent contraction which takes place during the first few hours after delivery is a common occurrence. When it passes off an increase in size begins to take place.
5. In women delivered at the full time, involution goes on more quickly and regularly than in those prematurely confined.
6. Length of labor retards involution.
7. In primiparæ involution of the uterus goes on very regularly, but more slowly than in young multiparæ. In aged multiparæ involution does not go on so well.
8. In women who suckle their children, involution during the first four days does not go on so quickly as in those who do not nurse. But, subsequently, the involution is quicker, though less regular.
9. After-pains are not necessary for a favorable involution; in fact, we are as well without them.
10. In order to determine the involution of the uterus, you should only measure its breadth.
11. Involution of the uterus goes on proportionally in length as well as breadth.
12. Super-involution and sub-involution occur as distinct uncomplicated pathological conditions.

Syphilis from Vaccination.

Mr. Henry Lee, Professor of Surgery in the Royal College of Surgeons, says, in a recent lecture:—That the blood, if not the direct means of conveying the syphilitic disease, may be the means of imparting a wonderful morbid energy to some other fluids in the human body, may be further illustrated by the now large number of cases in which syphilis has been communicated, when diseased blood, or some of its constituents, has accidentally been inoculated together with the vaccine lymph. The lecturer here gave an account of the series of cases which occurred in the practice of Dr. Marone, of Lupara, in 1856. The vaccine lymph was sent in glass tubes, and was observed to be mixed with a little blood. Twenty-three children were affected; they came of parents who had not previously shown symptoms of syphilis, and their general health had been good. In consequence of the infection of the children, the disease showed itself subsequently among the nurses and mothers of the children, and among the husbands of some of the women, and other persons. In some of the patients seen by Dr. Marone, the syphilitic symptoms continued in children, nurses, and mothers, until April 1859.

Previously to the outbreak of this terrible malady, Dr. Marone states that he had had no experience of syphilis among these villagers. "It is my duty, in the cause of truth," he further adds, "to state fully, that these inhabitants of Lupara were in no wise blind to the connection between cause and effect on the occasion of this painful occurrence; so that, in

fact, I was pointed out as a guilty party in the catastrophe which had occurred; and this is the reason why I was silent at the time, not only on my own account, but also for fear of discrediting one of the most important discoveries of our science. Vaccination was declared to be the foundation of all this misery. Now that I have seen that other surgeons have met with a like series of facts, whatever may happen to myself, I have disregarded personal considerations, and am no longer able to refrain from publishing the above-mentioned details, conceiving it to be a duty that I owe to science." Dr. Marone draws the following brief conclusions from his most interesting and affecting narrative. 1. The syphilitic disease was really transmitted in the above-recorded cases by means of vaccination; 2. The children vaccinated suffered first, and became the means of transmitting the disease to others; 3. The lymph used for the purpose of vaccination was impure, being mixed with blood, and that the result shows how necessary it is to abstain from using lymph of that description.

Mr. Lee had not himself seen any case of vaccino-syphilis during the progress of inoculation; but a case fell under his care in 1859, in which a child who had been vaccinated at the age of seven months was brought to hospital a year and a half afterwards with numerous dark copper-colored patches over his body, and especially on his lower extremities. He also had chronic enlargement of a gland in the axilla. The child was treated by mercury, and recovered.

Anæsthesia Produced by Esmarch's Bandage.

Chauvel (*Centralblatt für Chirurgie*, No. 16, 1875) has made fifteen experiments, twelve on the liver, three on the upper extremities, putting on the bandage after having first ascertained the normal sensibility in each case. Diminution of sensibility was observed in each individual, not appearing immediately, but in five to twenty minutes. Insensibility appeared more quickly in the upper than in the lower extremities, its intensity depending on the tightness of the application: it first appeared in the peripheral portion of the trunk, and gradually spread to the upper regions. Insensibility to painful impressions was first noticed, but whether this extended beneath the surface was not ascertained.

In two operations for ingrowing toe-nail with the use of elastic compression very little complaint was made by the patient. In a case of ischiatic trouble the actual cautery was used after compression; anæsthesia, however, was incomplete. It is evident that elastic compression would fail in bringing about complete anæsthesia unless the ligature was placed so near the central portion of the limb as to cause other and inconvenient results. The conclusion is that, as an anæsthetic, compression cannot exclude chloroform or ether.

Critique on the Esmarch Method.

Mr. Chiene, in the *Edinburgh Medical Journal*, observes that the thoroughness of action of the elastic bandage is the chief objection to its use; the smaller arteries being so completely emptied that natural arrest of hemorrhage by the formation of external clot during the operation cannot take place. As a consequence, when the compressing agent is removed, many vessels bleed which would have been otherwise closed; and before the surgeon has time to secure them by ligature, much blood is lost, and the operation is unnecessarily prolonged. The complete anæmia of the limb takes away that guide which oozing of blood gives to the situation of the smaller arteries, which cannot, therefore, be tied until the circulation is restored. And when it is restored every small artery bleeds freely, and leads to further loss of blood. Mr. Chiene considers the plan of simply raising the limb to be preferred, because it is not so complete; a gentle oozing as a guide to the smaller arteries is not prevented, and enough blood is left to allow external clot to form. In cases where there are putrefaction-products in the limb, the compression of the bandage is hurtful, and here, again, raising the limb is to be preferred. He objects to the elastic tubing, that it does not allow of being relaxed and tightened at the pleasure of the operator, a serious obstacle in private practice, where the number of assistants may be limited; and he would rather use Petit's tourniquet than the band of Esmarch.

Ergot as an Anti-galactagogue.

A Russian physician, Dr. J. Schtscherbinenkoff, has made the interesting observation (*Centralblatt für Chirurgie*, May 8, 1875) during an epidemic of secale cornutum in the district of Simbirski, that amongst the symptoms of ergot-poisoning is the diminution or complete arrest of the secretion of milk in lactating women. The same result was found to occur in cows that had been fed on meal which contained ergot, or that had been littered with carelessly threshed straw which still contained some affected ears. Schtscherbinenkoff conceived the idea of employing it as a remedy in cases of threatened abscess of the breast, and carried it out in many cases with great advantage. Two multiparæ who had suffered at each previous confinement from abscess of the breast, took some of the drug with the happiest result, as soon as swelling began to appear, accompanied by congestion of the gland with milk. He has also administered ergot and quinine, in doses of three grammes of each, twice or thrice a day, in cases of so-called milk fever, and has found the drug useful in cases of swelling of the breast accompanied by fever, in other than puerperal women, as well as in those where it is required to wean the child either at the normal or at an earlier period. He has exhibited as much as a drachm of ergot daily, for a week, without observing any unpleasant result.

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REASONING IN MEDICINE.

III. Mathematical Reasoning.

As we said in closing our last article on this theme, we principally, in medical reasoning, deal with *probabilities*. It is, therefore, of the last importance to understand the laws which govern them. These laws are included in the general mathematical Theory of Probabilities.

The mathematical probability of an occurrence—in other words, the chance of its happening—is the proportion which the chances favorable to it bear to all possible chances. In tossing a penny the chance of its turning heads is as 1:2, because there are but two sides on which it can rest; but in throwing a die of six sides, the probability for any one side is as 1 to 6 (or $\frac{1}{6}$). Further, the concurrence of two independent coincidences is the product of their respective probabilities; for example, in tossing a penny and throwing a die simultaneously, the chance that the head of the former and the ace of the latter will concurrently be uppermost is $\frac{1}{2}\times\frac{1}{6}=\frac{1}{12}$, or as 12 against 1.

Our certainty in diagnosis depends on this principle. By the more concurrent symptoms we detect, our opinions approach certainty in geometrical progression. Suppose we are called to a case of intermittent; we note first fever, which, we will say, occurs in three-fourths of diseases; next we learn of a preceding chill, which may be common to one-sixth of diseases; and lastly, perspiration following fever, which may occur in, say, $\frac{1}{10}$ of the diseases not excludable from other circumstances. The probability that these concurrences are chance coincidences is $\frac{3}{4}\times\frac{1}{6}\times\frac{1}{10}=\frac{3}{240}$; in other words, the probabilities are as 80 to 1 that the diagnosis of intermittent is correct. This illustrates the rapid approach toward a certainty which a series of symptoms, none of which are pathognomonic, may insure; and the desirability, therefore, of noting with care each additional symptom. Of course, a negative symptom is to be given its due weight in the same manner. In a case where it is evenly doubtful whether chronic bronchitis or consumption is present, which would be expressed by $\frac{1}{2}$, hæmoptysis occurs, which, we will say, happens fifty times more frequently in the latter than in the former; the probability that it is the latter, and not the former, will be $\frac{1}{2}\times\frac{50}{1}=\frac{50}{2}$, or as 25 to 1.

From a study of these relations, the eminent mathematician, James Bernouilli, established the principle that when only two occurrences are possible, we can predict with absolute certainty, when dealing with large numbers, the occurrence of the one or the other. This profound and remarkable generalization imparts their whole value to statistics. It is easily illustrated. A city of half a million inhabitants has had an annual mortality, for some years, of 28 per 1000; the same conditions continuing, we can positively predict this will be its mortality the current year. Tables of expectation of life, etc., are dependent on the same laws.

The application of these numerical methods

to the diagnosis and treatment of disease was first urged, on a large scale, by Louis, of Paris, and found a determined opponent in Trousseau. But the criticisms of the latter apply properly to the abuses of the system, and not to the system itself. Its numerous other applications, outside of medicine, show this conclusively. It has even been made by the historian Buckle the key to unlock all the social difficulties of the day and the political obscurities of the past.

Its use can readily be proven. Suppose, in prescribing a given treatment, we have in a cholera epidemic 80 per cent. of recoveries, what likelihood is there that we can attribute the recoveries to our treatment rather than to the natural course of the disease? The average mortality of cholera, not treated, is, say, 40 per $100 = \frac{2}{5}$; under our treatment $\frac{1}{5}$. Hence, in five cases, of which four have recovered, the probabilities are as 2 to 1 that they have recovered in consequence of our remedies. This is very far from being a certainty, and is only a slight probability. To attain a result worth bruiting about to our fellow physicians, we should continue the observations until there is a very strong probability. Each additional five cases with like result, that is, four recoveries, diminishes the possible error in a proportion which has been definitely ascertained and formulated by the mathematician mentioned. If we represent this possible error by e, and the probability of correct observation in the cases hitherto observed by $\frac{p}{q}$, the formula would be $e = \pm\sqrt{\frac{8\,p\,(q-p)}{q\,3}}$.

The possible error thus definitely limited may be either short or in excess. Tables, with the necessary calculations worked out, are given in Dr. Hirschberg's work. From them it appears that in order, for instance, to infer with high probability that the mortality of a disease is 20 per cent., about 10,000 cases should have been reported with this result.

How essential such clear methods of reasoning are, is very evident to the mathematical mind; and their almost total neglect, indeed, the general ignorance concerning their very nature, is only too evident in the medical literature of the day. Hardly anywhere is this more obvious than in dealing with statistical results, and in the deduction from them of average results. This we shall more particularly dwell upon in our next article.

Meanwhile, to illustrate the subject, we will give the "arithmetical law of the progression of epidemics," as stated by Dr. Farr in 1866:—

"Take nine weeks of the early course of the epidemic, in three groups of three weeks each: find the average deaths per week in each group: find the number by which you must multiply the first average to obtain the second, and the numbers by which you must multiply the second average to obtain the third: or, as simpler process, take the difference between the logarithms of the first and second averages, and between the logarithms of the second and third. The first of these differences may be called δ^1, and the difference between these two differences, which should, to bear out this theory, be a negative quantity, may be called δ^2. We have now the data for constructing the series. The average of the first three weeks is the starting point, and represents the centre week of those three. The next number in the series is obtained by adding to the logarithm of our first number a number composed of $\frac{\delta^1}{3} - \frac{\delta^2}{9}$, remembering that δ^2 is a negative quantity; we continue to add to the logarithm for each place in the series a number gradually diminished by the addition in each place of $-\frac{\delta^2}{9}$: after a time the number to be added becomes negative, and the series gradually diminishes."

This method has been applied to the cattle plague of 1865–66, the cholera epidemics of 1849 and 1854, and the scarlatina epidemics in London during the years 1840–71, and in 1874. The results were, to a great extent, satisfactory. The extent to which it has already been found available is encouraging to the adoption of more mathematical reasoning in medicine than has heretofore been customary.

Notes and Comments.

On Damiana.

In the Reporter, of May 15, we quoted, from the *Virginia Medical Monthly*, some cases reported by Dr. Caldwell, of Baltimore, in which a new Mexican plant, called damiana, was employed. This applicant for recognition as a therapeutic agent was said to be a powerful aphrodisiac and nerve tonic. We advised, at the time, our readers not to be prematurely captivated with this announcement, and promised the results of some personal inquiries.

Our application for samples of the extract was complied with by the proprietor of the preparation, for which courtesy we express our thanks. But he declined to state from what part of Mexico he obtained it, or through what channels of trade. He further added that no botanical specimen of the plant could be had.

The extract sent us contained considerable alcohol, the effect of which must be allowed for. The amount of alcohol in a dose of the extract was fl.ʒj or fl.ʒij.

In two instances we administered a dessert-spoonful of the extract three times a day, to healthy men, for three days. The result was null beyond a slight stimulation from the alcohol.

In three cases we administered two full bottles of the extract to men, from twenty-five to thirty-five, suffering from exhaustion of the generative powers, incident to excessive coition and self-abuse. From one of these we have not heard. The second reports, after using it steadily for three weeks, a loss of appetite, and "so little improvement in the strength of the organs that he can hardly tell if there is any." The third, an intelligent gentleman, writes as follows:—"I do not consider the damiana did me any good. It increased the desire for sexual congress during the first few days I used it; after that the inclination passed away, and now, after finishing the second bottle, I have no desire at all. I had intercourse once while using the first bottle, but did not observe any increase of strength in the organs."

We have no desire to claim "the sole proprietorship of scientific investigation," which our friend of the *Virginia Medical* assigns to us; but it would be quite as proper to do so as to maintain the monopoly of a really useful drug: This, however, we distinctly do not lay at the door of the Washington pharmacist; for we firmly believe *damiana* to be useless, or nearly so!

On Croton-Chloral.

The reports about this recent drug are as yet very conflicting. One writer, Dr. Mering, speaks of it depreciatingly, while, in Germany, Dr. Otto Berger has strongly recommended it in sciatica, in the pains of locomotor-ataxy, and in angina pectoris, in repeated small doses of 0.1–0.2 grammes. There seems to be little doubt, however, that the hypnotic action of croton-chloral is inferior to that of chloral. In addition to those of Dr. Mering on this point, Dr. Bouchut, of Paris, has made a number of comparative experiments on children with the two drugs, and his results are decidedly in favor of the chloral, for while three or four grammes of the latter will produce such complete anæsthesia that abscesses can be opened or teeth extracted without pain to the children, the croton-chloral, even in four-gramme doses, scarcely produces sound sleep. Further observations will have to explain the discrepancies between Dr. Mering's and Dr. Berger's conclusions, and to indicate with more precision the exact class of cases in which the drug is really useful. It is hopeful, however, for the future of medicine, that, in the short time which has elapsed since its discovery, so much should already be known about it.

The Death Rattle.

Not long since the eminent Dr. Piorry read a paper before the Académie de Médecine, "On the Influence of the Bronchitic Secretion on the Act of Death." He urged that its presence, even in such quantity as to cause merely lessened elasticity and crepitation of the lung substance, constituted the last and finally efficient link in the chain of the causes of death, and that the recognition of this is of practical as well as pathological importance. A lung which crepitates and remains voluminous when removed from the body is in an essentially morbid state, and to regard it, as is often done, as healthy, is to consider as normal a state which is, in fact, the immediate cause of death. In the cases to which M. Piorry seems especially to refer, those in which the amount of fluid in the lung-tissue is so trifling as hitherto to have been considered normal, because almost always found after death, we doubt whether this last is not

also the least in the chain of causes, and whether the practical disregard of it has the grave diagnostic and therapeutical consequences he suggests.

The Woman-Doctor Question.

The *Union Médicale*, for June 5th, contains a well-written letter, from the pen of Madame Anna Puéjac, "Sage-femme en chef de la Maternité de Montpellier," in which she urges that many of the objections made to women pursuing a medical career, by M. Richelot and others, are characterized more by mere sentimentality than by sound judgment. Thus, much has been said upon their want of modesty; but this reproach, addressed to women who have passed the age of school-girls, and have seriously entered on the business of life, with well-trained minds and with a conscience alive to their duties, is a very foolish one. In fact, it is the immodesty of the present state of things, which compels women to have recourse to the offices of men on many occasions when they would prefer those of women, that has given so powerful an impulse to the movement. And it does seem strange, that the same persons who see something so shocking in women studying the anatomy of the body or frequenting hospitals, find little or nothing to object to in their frequenting balls and assemblies in a half-naked state, amidst all kinds of sensual excitement, in their perusing the most demoralizing novels, and in their attentive examination of the labors of the artist and sculptor.

Instance of Ravenous Appetite.

Foreign journals mention that Dr. Lubelski, of Warsaw, has forwarded to the Paris Académie de Médecine the particulars of a remarkable case of bulimia occurring in a woman twenty-six years of age, usually enjoying good health. She had been married but two months when she was seized suddenly with nervous symptoms, which were at first attributed to probable pregnancy. But at the same time came on an insatiable appetite and devouring hunger, so that the woman would eat from fourteen to sixteen pounds (Russian?) of meat daily. Neither sugar nor albumen were found in the urine. She grew enormously fat, so that she became unable to walk, and weighed 250 pounds. All known therapeutical agents were tried in vain, and it was found that there was quite an abnormal tolerance of poisonous substances. Neither tænia nor any other form of helminthiasis existed, nor, indeed, any pathological condition which offered a clue for treatment, although the occurrence of convulsive paroxysms when she was not supplied with food seemed to indicate some kind of nervous affection.

Instances of Longevity.

According to the mortality returns for England for the year 1872, 195 men and 433 women died at 95 years old and upward. Twenty-four of the men had reached 100 or upward, and one, who died in Morpeth Workhouse, was registered at the age of 111 years. Of the women, 51 had lived a century or more, and 2 had attained the age of 107 respectively. Of the 75 persons registered as 100 or upward, 9 died in London, their respective ages being, two 101, two 102, one 103, two 104, one 105, and one 107.

The Irish mortality returns, made up for the year 1872, record the deaths of 368 males, and 481 females, registered as ninety-five years old or upward when they died. Of these, 303 were persons stated to have reached the age of 100 years and upward—135 males and 168 females. 77 of the men and 100 of the women in every 10,000 are stated, in the returns, to have been over 95 years of age.

Poisonous Action of Laburnum.

A case reported in the *Medical Press and Circular*, by Dr. F. F. Porter, illustrates the poisonous effects of the flowers of laburnum (Cytisus laburnum). On the evening of Saturday, May 15th, 1875, a fine male child, 3 years of age, was brought to him in an almost dying state: the pulse was imperceptible, the surface of the body cold, pupils dilated, the head rigidly thrown back, and the breathing stertorous; vomiting was freely taking place, but purging was absent. The mother stated that the child had been detected eating laburnum three hours before, and that the vomiting had been profuse for two hours. On examining some of the vomited matter fragments of the flowers in a broken-down state were seen. The treatment consisted of the free use of ammonia with bark, the application of sinapisms to epigastrium and nape of neck; castor oil was also administered. Recovery followed.

Correspondence.

Compression of the Abdominal Aorta.

Ed. Med. and Surg. Reporter:—

In the last number of the Reporter I see an article, by Dr. Curtis, of Erie County, N. Y., upon the compression of the abdominal aorta.

Allow me, through your columns, to add my testimony, upon the propriety of this procedure in uterine hemorrhage.

In the evening of May 14th, 1875, I was called to see Mrs. Joseph Thompson; found her in labor, with, I believe, the sixth child. Patient was of Irish descent, of full habit, and in perfect health. Labor normal, terminating about midnight; placenta came without assistance; no hemorrhage of any amount; uterus contracted, to all appearance, naturally. Remained with patient a little over two hours; pulse, at the time of leaving, eighty-five; uterus, as far as I was able to judge, still well contracted. After giving some directions in regard to the general management of the case, I left. I had only proceeded about four blocks, when the husband overtook me, and said his wife felt faint, and wanted to know if he could give her some brandy. I immediately retraced my steps, and upon entering the sick-room, I was astonished to see her so perfectly blanched, lips, and even tongue, colorless: patient insensible, from having fainted. I immediately loosened the bandage, grasped the womb, and tried to get up contractions; failing in that, I introduced my hand within its cavity, removed the clots present, but all I could do I could not rouse the womb. Remembering the source of supply, I immediately commenced compression of the aorta. She was a large woman, with a large and full abdomen, and it was with some difficulty that I succeeded. I immediately sent for my friend, Dr. G. O. Taylor, who rendered me great assistance in giving ergot, and applying ice, externally, as well as internally. With suitable restoratives we succeeded, after a long time, in obtaining contractions, and our patient was saved; and saved, no doubt, by the timely compression of the aorta. I am firmly convinced that, by this treatment, every case of post-partum hemorrhage might be controlled successfully. Respectfully, etc.,

D. M. Cool, M. D.,
45 *Egan Avenue, Chicago, Ill., August* 2, 1875.

Chloral an Antidote to Strychnine.

Ed. Med. and Surg. Reporter.

I think I have recently had an opportunity of testing the power of chloral hydrate in arresting the poisonous effect of strychnine.

A young woman of remarkably healthy and robust appearance, on account of some disappointment in love affairs, determined on self-destruction, and bought for that purpose, as she says, half a teaspoonful of strychnine, mixed it in half a tumbler of water, and drank it.

She immediately informed her mother of what she had done, whose incredulity was soon dissipated by the occurrence of spasms.

On my arrival at the house, about one hour and a half after the dose had been taken, I was met by the father, who told me that his daughter had had spasms every little while for the past hour, and that they were increasing in severity—that she was "*just gone.*"

I gave sulph. cupri, which produced emesis, copious and immediate; also, subcutaneous injection of morphia. Spasms were severe and nearly continuous. Remembering to have read in your Med. and Surg. Reporter of *chloral* as useful in such cases, and fortunately having some with me, I gave twenty grains of it, when occurred a most terrific spasm, opisthotonos, etc., during which it was with great difficulty that she was kept upon the bed. As soon as was possible, I gave an additional dose of thirty grains chloral, when the spasms gradually diminished in frequency and force, entirely subsiding within the space of two hours, and she falling into a quiet sleep.

It is, of course, impossible to know the quantity taken, but as the tumbler used was coated with strychnine for half its depth, it must have been *ample.*

Yours, truly, J. W. Winslow, M. D.
East Hampton, Mass.

News and Miscellany.

Alessandro Volta.

The *Annali Universali di Medicina*, for April, gives an account of the exhumation of the remains of the celebrated philosopher, Volta, on March 30, at Camnago-Volta, Como. This does not seem to have been a national act, but merely one performed by his descendants for the purpose of placing the remains of their ancestor in a splendid mausoleum which they had prepared for their reception. Still, it was made a solemn and imposing ceremony, for not only was the body laid in state for some time, for public inspection, but its reinterment was attended by the representatives of nearly all the Italian universities and learned societies, the Minister of Public Instruction being also represented by Prof. Cantoni, a successor to the chair held by Volta in the University of Pavia.

It seems that a careful examination of the cranium was made, and the following results are recorded:—Cranial capacity, 1865 cubic centimetres; orbital capacity, 25·5 c. c.; antero-posterior diameter 190 millimetres; the maximum transverse diameter, 153 mill.; the basilo-bregmatic vertical diameter, 140 mill.; the height of the facial line, 115 mill.; the antero-posterior curve 383 mill.; circumference of the cranium, 556 mill.; the facial angle, 73 degrees; weight of the cranium, 695 grammes; weight of the lower jaw, 57·5 gr. The weight of the brain

must have been, according to the calculations of Prof. Lombroso, 2055 grammes, and, therefore, superior to that of Cuvier (1829 gr.), and to that of Byron (1807 gr.), and little less than the apocryphal weight of that of Cromwell, and 440 gr. above Italian mean weight. So, also, as the mean capacity of Italian male crania is little more than 1500 cubic centimetres, that of Volta exceeds this by about a fourth. In form, Volta's cranium belongs to the true Roman-Italian type, and exhibits great harmony in the development of all its parts. The sutures were all effaced, as was to be expected in an individual who had exceeded his eighty-second year.

Small-pox in France.

The total number of deaths from small-pox among the civil and hospital populations of Paris during the first quarter of 1872 was 24; in 1873, 7; in 1874, 4; and in 1875, 31. Judging from the history of former epidemics, a new explosion would not seem to be imminent; but now, that the disease threatens to be again passing from a sporadic into an epidemic form, is the time for the vigorous employment of prophylactic measures.

Personal.

—When Madame Brés had passed her examination in the Paris School of Medicine, M. Wurtz, the President of the Examining Board and Dean of the Faculty, addressed her in the following terms: "Madame, you have not only raised women from the secondary position they have held in medicine, but your thesis is one of the best that the Faculty of Paris has ever received, and it will be consigned with honor to its archives." The title of the thesis was, "La Mamelle et l'Allaitement," a very appropriate subject for a doctoress, and was treated of in an anatomical, a chemical, and physiological point of view.

—Drs. Kaposi, Auspitz, and Neumann, have been appointed extraordinary professors of Dermatology and Syphilis in the University of Vienna. They have hitherto held the position of *privat-docent*. Dr. Carl Störk, *privat-docent*, has been appointed extraordinary professor of Laryngoscopy in the same University.

—The eminent Irish obstetrician, Dr. Fleetwood Churchill, has retired from practice.

Items.

—Addison used to say he could always tell what business a man followed after hearing him talk ten minutes. It would not have required an Addison to certify the profession of Dr. Cooly, of Vineland, who, in an address before the Anti-fashion Society, last week, stated that he was not prepared to say when Victoria Woodhull would deliver her speech to the Vinelanders, which he rather alarmingly described as an effort "that would cause a revolution in the bowels of the nation."

—The fifteenth session of the American Dental Association, held at Niagara Falls, adjourned last week, to meet in this city next year. The following officers were elected:—President, Dr. A. L. Northrop, of New York; Vice Presidents, H. J. McKellaher, of St. Louis, and H. A. Smith, of Cincinnati; Secretary, J. H. McQuillan, of Philadelphia; Treasurer, W. H. Goddard, of Louisville.

—No new case of yellow fever has occurred at Fort Barrancas since the 2d inst. There was one death on Thursday night. Dr. Sternberg was reported convalescing on the 7th. Forty-four cases are now under treatment at the fort, twenty-nine of which are pronounced convalescent.

—Australia has one doctor to every 1000 inhabitants. Too thick!

—The green flannel which lines gum boots is said to have occasioned severe local symptoms, attributed to an arsenious dye used to give it its hue.

—A good story is told of Chivac, the Duke of Orleans' physician. He never noticed that he was ill, being so anxious about the health of others; but one day he felt his own pulse and said: "He's a dead man. I have been called in too late."

—A quack doctor in Baltimore made a speech on corns. He said corns and bunions are a mystery to the medical science; they come from wearing tight boots and shoes, and also from loose ones; they come when they please, where they please, and stay just as long as they please, and nothing in creation can remove them but Finnegan's corn salve.

QUERIES AND REPLIES.

MR. EDITOR:—In answer to Dr. R. M. H., in REPORTER of May 29, 1875, I would say that I have, for four years past, only used sulph. morph. for hypodermic use, dissolved in water. I carry with me powders of 1 gr. each, and a graduated syringe. I put my powder in a small vial, draw into my syringe 40 gtt. of pure water, and throw it on to the powder, which gives me a clear solution. From this solution I charge my syringe with 5, 10, or 20 gtt., as may be required. This gives me entire satisfaction, never having produced, in hundreds of injections, an abscess or any inconvenience to my patients. Respectfully, A. J. OVERHOLT.

OBITUARY.

DR. WINSLOW LEWIS

Died in Boston, August 2, aged 76 years. He was reputed one of the most skillful surgeons in the United States, having studied under Dupuytren in Paris, and Abernethy in London, and practiced with success in Boston. He served several terms in the Legislature of Massachusetts, was for some time President of the New England Historical and Genealogical Society, and was twice Grand Master of the Masons of Massachusetts.